# Next to best health decisions

# Valorization Addendum

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The main aim of this thesis was to explore two examples of decisions we identified as a next to best health decision. When making health-related decisions, there can be different options to choose from. For instance, a parent can decide to accept, refuse, or partially accept childhood vaccinations; or a smoker can decide to quit smoking or switch from smoking regular cigarettes to electronic cigarettes (e-cigarettes). Public health professionals often inform individuals only about a *recommended option*, i.e. the option that is scientifically proven to be the healthiest. For example, they provide a brochure in order to inform parents about vaccinating their children according to the schedule of the National Immunization Program (NIP).[1,2] However, this recommended option might not be suitable for all individuals due to different personal values, priorities with regard to health, previous experiences, opinions, and the norms of their social environment. Consequently, in these cases people may prefer to choose options that match their individual values and goals; yet, these options may be considered by public health professionals as, for example, '*next to best*'. Next to best health options are – from a public health and scientific point of view – less harmful or healthier than the unrecommended health option, but less preferred than the recommended option. Another option people may choose is the unrecommended option, which is considered as being unhealthy by public health experts and science.

To expand our understanding of these next to best health decisions, we had two aims. First, we examined determinants influencing the decision about smoking behavior and childhood vaccination, both qualitatively and quantitatively. Second, we examined the extent to which decisions regarding smoking behavior and childhood vaccination adhere to the criteria of informed decision-making. The results may facilitate and support communication programs that incorporate decision-making about smoking behavior and childhood vaccination.

## Relevance of research into next to best health decisions

### *E-cigarette use*

In recent years a shift from recommended to next to best health options could be noticed. In the case of e-cigarettes, research has demonstrated that since their introduction in 2003, the appeal of e-cigarettes has increased rapidly.[3-9] The number of people who smoke in the Netherlands is decreasing.[10,11] In 2017, 23% of the adult Dutch population smoked cigarettes.[11] Of these 23%, 75% smoke daily. Three percent of Dutch adults use an e-cigarette. Ten percent of the current smokers sometimes use an e-cigarette, and daily smokers (12%) use an e-cigarette more often compared to non-daily smokers (4%). However, decision-making about e-cigarette use is largely uninvestigated, it is unclear how people make a decision about smoking and vaping behavior. In this thesis these decisions were investigated in order to provide information for health communication aimed to

support these decisions. The current chapter will provide information how the findings of this thesis might be used for health communication strategies aimed to support decisions about smoking and vaping behavior.

### *Partially accepting childhood vaccination*

For childhood vaccination a decrease in the vaccination coverage and an increase in the unrecommended and next to best health option was found in previous years. Of all Dutch two-year-olds born in 2014 3.6% did not receive any vaccines according to the NIP and 5.2% received or delayed some vaccines, and of Dutch two-year-olds born in 2015 4.6% did not receive any vaccines according to the NIP and 5.2% received or delayed some vaccines.[12] However, the vaccination coverage does not provide insight into whether parents have questions or doubts regarding their decision or how parents made a decision about childhood vaccination. For example, parents who accept all childhood vaccinations, may still have doubts about their decision or even experience regret.[13-15] Or parents who refused childhood vaccination may have based this decision on fear of side-effects their child may experience due to a vaccine. Because little is known about the doubts and regret parents may face with regard to accepting, refusing, and partially accepting childhood vaccination it is important to investigate decision-making. The current chapter will provide information about how the findings of this thesis might be used for health communication strategies aimed at supporting parents with decision-making about childhood vaccination.

## Activities as a result from this thesis

### *Further steps for health communication*

With regard to the next to best health option, further research is needed. Although recommended health options can be considered as most beneficial for public health,[6,16-19] next to best health options have potential individual and public health benefits compared to unrecommended health options.[16,20-30] However, in itself, next to best health options are not the most beneficial for individual health nor without risks.[6,31,32] Consequently, these options are not recommended from a public health perspective.

Even though an option may not be recommended by public health experts, people search for information that reinforces their chosen option or may facilitate arriving at their desired decision,[33,34] and thus, it is important to provide evidence-based information about all options. Based on our results, we recommended further research to investigate the effects of communicating about the recommended health options, the unrecommended option, and the next to best health options. The current findings have instigated several efforts targeting the communication about childhood vaccination. Efforts have been made to investigate the effects of communicating about the recommended, unrecommended, and next to best health options on decision-making. In particular, the effect of communicating about these options on the intention to towards accepting or refusing the

recommend health option and on decisional conflict experienced. Insights generated from these studies will further aid public health experts and policy makers in determining the goals of health communication. In addition, the results of such a experimental study may generate input for the communication effort of the RIVM. For example, the brochure presented to parents may be adapted as a result of this study.[1,2,35-37]

### *Considerations for the RIVM*

The RIVM is currently responsible for informing parents about the National Immunization Program. For this purpose, they use a standard brochure that all new parents receive after the birth of their child.[1,2,35-37] With an experimental design researchers from the RIVM want to investigate what the effects are of communicating about accepting (i.e. the recommended health option), refusing (the unrecommended health option), and partially accepting (i.e. the next to best health option) versus solely communicating about accepting childhood vaccination, on two primary outcomes: decisional conflict[38] related to the decision about childhood vaccination and intention towards childhood vaccination. The results of this study will inform policy makers about further steps needed in communication strategies.

### *Considerations for policy makers and health professionals*

The results of this thesis and the experimental study may prove useful for policy makers. Policy makers may have different goals with providing information with regard to various health behaviors.[39] If policy makers opt for providing scientific information without steering, they may want to facilitate informed decision-making, which may lead to more people choosing the unrecommended health option. On the other hand, if policy makers and health professionals do not include information about alternative health options – and thus neglect other options that may be considered – and only inform the public about the recommended health option, the public may search for information about alternative health options on informal channels. Not providing information about unrecommended or next to best health options, may thus facilitate biased information processing among the public and decrease trust in public health experts due to a lack of transparency. The experimental study may thus generate insight for policy makers. For example, if experienced conflict is reduced and the intention to accept the recommended health option remains the same or increases, then communicating about all three health options does not harm public health, then supporting decision-making may be a possible goal of communication. However, if intention to accept the recommended health option is reduced due to communicating about all three health options, then communicating about all three health options may not be desired and persuasion may be a goal of communication.

The results of this thesis may furthermore prove useful for health professionals. Health professionals, such as GPs and general practice-based nurse specialists,

may be able to play an important role in the decision-making process about switching from cigarettes to e-cigarettes. Similarly, Child Vaccine Providers (CVPs) at the Child Welfare Centers (CWCs) may be important to assist in decision-making about childhood vaccination. With insight into factors that can support the decision-making process, health professionals may be able to exchange evidence-based information, address misperceptions and doubts, strengthen positive attitudes, answer questions, and discuss the various choice options.

*Dissemination of results*

This thesis resulted in several publications in scientific journals. These describe decision-making factors with regard to two relevant public health behaviors and provide implications for health communication. Our results about e-cigarette use and childhood vaccination generated media attention. For example, several news items were published by the RIVM, and a major Dutch newspaper. We discussed our findings at international and national conferences, and we were invited to speak at Yale University, the Virginia Common Wealth University at Richmond, and the Gillings School of Global Public Health in Chapel Hill. Policy makers, including the Dutch Secretary of Health, showed great interest in our results during multiple meetings. For example, policy makers were advised about a survey related to the attractiveness of e-cigarettes and we spoke about the decision-making of parents who refuse or partially accept childhood vaccination with the Dutch Secretary of Health. In addition, our results about the attractiveness of e-cigarettes were used by the Dutch secretary of health to strengthen his argument to ban the sales of non-tobacco e-liquid flavors and expand existing smoking bans to include e-cigarette use.[40] These measures are part of the national prevention agreement that aims to achieve a smoke free generation in 2040.[40] Results of our studies were also used in the yearly surveillance report of the Dutch National Immunization program, this led to multiple publications.[1,12] Every year, surveillance and scientific developments are presented in a report of the National Immunization Program, in 2018 and 2019 our results were used to describe the scientific developments related to decision-making about childhood vaccination.

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